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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,135	01/21/2005	Douglas Wilbert Paul Smith	SM-01	6155

50285 7590 05/15/2007  
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EXAMINER
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NGUYEN, HOANG M

ART UNIT	PAPER NUMBER
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3748

MAIL DATE	DELIVERY MODE
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05/15/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/523,135

**Applicant(s)**SMITH, DOUGLAS WILBERT  
PAUL**Examiner**

Hoang M. Nguyen

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 10-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

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Applicant's amendment dated April 03, 2007, has been fully considered.

Applicant has argued Kaplan does not disclose a multi-component working fluid comprising ammonia and water. The Examiner agrees and the 102 rejection has been withdrawn.

Applicant has argued it would not have been obvious to combine Kaplan with Kalina because there is no motivation to do so. The Examiner strongly disagrees. Kaplan teaches all basis elements of the invention with the only exception of using different working fluid. Changing working fluid in thermodynamic system has been well known in the art. Kaplan teaches a Rankine cycle, and Kalina teaches that it's well known for his invention to improve based on the Rankine cycle. On column 7, lines 12-28, Kalina teach that his invention uses standard equipments from Rankine cycle. Therefore, it would have been obvious to replace the working fluid in Kaplan with the multi-component working fluid in Kalina to achieve appropriate work output.

Applicant also argued there is no motivation to combine Maisotsenko et al with Kalina. Once again, the Examiner strongly disagrees. Maisotsenko et al already teaches that his invention can be used in a Kalina cycle, the only missing element is the counter flow recuperator which is well known in the art as taught by Kalina to control the temperature of the working fluid. Therefore, it would have been obvious to use the

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recuperator in Maisotsenko et al with the counter-flow heat exchanger as taught by Kalina to get the desired temperature.

Because claims 10-14 are now rejected under 35 USC 103 instead of 35 USC 102, this Office Action has been made non-final.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US 5664419 (Kaplan) in view of US 4548043 (Kalina). Kaplan discloses an organic Rankine cycle using organic fluid which has multi-components comprising an organic turbine 27, a recuperator 32, a condenser 32, a pump for pumping fluid back in the counter-flow heat exchange with turbine exhaust, a preheater 22, a vaporizer 18, then return to the turbine 27. Kaplan does not teach that the fluid comprising ammonia and water. Kalina teaches it's well known to use multi-component fluid using ammonia and water. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the multi-component fluid having ammonia and water in Kaplan as taught by Kalina for the purpose of achieving appropriate power output based on the characteristics of the fluid.

Claims 10-17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US 7007453 (Maisotsenko et al) in view of US 4548043 (Kalina). Maisotsenko et al discloses in figure 11 a system which can be a Kalina cycle comprising a continuous stream of working fluid flowing from a turbine 300 to a condenser 202, to a recuperator 201, back to an evaporator 205, a pump 203, but still does not teach the turbine exhaust is in counter flow heat exchanging with the return line from the pump. Kalina teaches a method/apparatus for producing power comprising a feed pump 51, a recuperator 56, a heater/superheater 68, 70, 72, turbine 74, 76, a condenser 52, note there are many cooling stages, inside the recuperator 56, then through the heat exchanger 54 with another fluid source 59, and inside the condenser 52 with another fluid source through 47, 48, all fluid are in counter flow direction with the working fluid.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the recuperator as a counter-flow heat exchanger in Maisotsenko et al as taught by Kalina for the purpose of heating/cooling the fluid at least twice to improve the efficiency.

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Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Examiner Nguyen whose telephone number is (571) 272-4861. The examiner can normally be reached on Tuesday--Friday from 12:30 AM to 10:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on 571-272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



05/27/07

HOANG NGUYEN  
PRIMARY EXAMINER  
ART UNIT 3748

Hoang Minh Nguyen  
5/7/2007